UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,030	03/23/2004	Koji Kushida	393032044700	5667

25224 7590 10/03/2007

MORRISON & FOERSTER, LLP
555 WEST FIFTH STREET
SUITE 3500
LOS ANGELES, CA 90013-1024

EXAMINER	
SUTHERS, DOUGLAS JOHN	

ART UNIT	PAPER NUMBER
2615	

MAIL DATE	DELIVERY MODE
10/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/808,030	KUSHIDA, KOJI	
	Examiner	Art Unit	
	Douglas Suthers	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 March 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *03/23/04, 04/09/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2615.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: No item "S" is found in figure 3(a), although it is referenced. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to because figures 11 and 13 are not referenced in the specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are

required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 15 and 16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. A "reverberation program" does not constitute statutory subject matter.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagamitsu (US 5467401).

7. Regarding claim 1, Nagamitsu discloses a reverberation apparatus for creating an acoustic effect of an acoustic space which is arranged under an instruction of a user with a sound generating point for generating a sound and a sound receiving point for receiving the sound which travels from the sound generating point to the sound receiving point through sound ray paths within the acoustic space, and for applying the created acoustic effect to an audio signal representative of the sound, the reverberation apparatus comprising:

a storage section (figure 2, item 12 and 11 location and volume distribution) that stores a directional characteristic representing a directivity of the generated sound at the sound generating point;

a position determining section (12, source position) that determines a position of the sound generating point within the acoustic space on the basis of the instruction from the user;

an orientation determining section (12, source orientation) that determines an orientation of the sound generating point based on the position determined by the position determining section;

an impulse response determining section (21) that determines an impulse response for each of the sound ray paths along which the sound emitted from the sound generating point travels to reach the sound receiving point, in accordance with the directional characteristic of the generated sound stored in the storage section and the orientation of the sound generating point determined by the orientation determining section; and

a calculation section (25) that performs a convolution operation between the impulse response determined by the impulse response determining section and the audio signal so as to apply thereto the acoustic effect.

8. Regarding claim 2, Nagamitsu discloses wherein the orientation determining section identifies a direction (incident direction) to a given target point (wall section or receiving point) from the sound generating point at the position determined by the position determining section, and determines the orientation of the sound generating point in terms of the identified direction from the sound generating point to the target point (column 6).

9. Regarding claim 3, Nagamitsu discloses wherein the orientation determining section sets the target point to the sound receiving point (as above) in accordance with the instruction by the user.

10. Regarding claim 4, Nagamitsu discloses wherein the orientation determining section identifies a first direction (incident direction) to a given target point (wall section or receiving point) from the sound generating point at the position determined by the position determining section, and determines the orientation of the sound generating point in terms of a second direction (head position) making a predetermined angle with respect to the identified first direction.

11. Regarding claim 5, Nagamitsu discloses wherein the orientation determining section sets the target point to the sound receiving point (as above) in accordance with the instruction by the user.

12. Regarding claim 6, Nagamitsu discloses wherein the position determining section determines the position of the sound generating point which moves in accordance with the instruction from the user (user changes source position), and wherein the orientation determining section identifies based on the determined position of the sound generating point a progressing direction along which the sound generating point moves, and determines the orientation of the sound generating point in terms of the identified progressing direction (orientation updated when source moved).

13. Regarding claim 7, Nagamitsu discloses wherein the position determining section determines the position of the sound generating point which moves in accordance with the instruction from the user (user changes source position), and wherein the orientation determining section identifies based on the determined position of the sound generating point a progressing direction along which the sound generating point moves (orientation updated when source moved), and determines the orientation of the sound generating point in terms of an angular direction (head position) making a predetermined angle with respect to the identified progressing direction.

14. Regarding claim 8, Nagamitsu discloses reverberation apparatus for creating an acoustic effect of an acoustic space which is arranged under an instruction of a user with a sound generating point for generating a sound and a sound receiving point for receiving the sound which travels from the sound generating point to the sound receiving point through sound ray paths within the acoustic space, and for applying the created acoustic effect to an audio signal representative of the sound, the reverberation apparatus comprising:

a storage section (figure 2, item 13, head rotation) that stores a directional characteristic of a sensitivity of the sound receiving point for the received sound;

a position determining section (13, user position) that determines a position of the sound receiving point within the acoustic space on the basis of the instruction from the user;

an orientation determining section (13, incident direction) that determines an orientation of the sound receiving point based on the position determined by the position determining section;

an impulse response determining section (21) that determines an impulse response for each of the sound ray paths along which the sound emitted from the sound generating point travels to reach the sound receiving point, in accordance with the directional characteristic of the sensitivity for the received sound stored in the storage section and the orientation of the sound receiving point determined by the orientation determining section; and

a calculation section (25) that performs a convolution operation between the impulse response determined by the impulse response determining section and the audio signal so as to apply thereto the acoustic effect.

15. Regarding claim 9, Nagamitsu discloses wherein the orientation determining section identifies a direction (incident direction) to a given target point (source point or reflection point) from the sound receiving point at the position determined by the position determining section, and determines the orientation of the sound receiving point in terms of the identified direction from the sound receiving point to the target point (column 6).

16. Regarding claim 10, Nagamitsu discloses wherein the orientation determining section sets the target point to the sound generating point (as above) in accordance with the instruction by the user.

17. Regarding claim 11, Nagamitsu discloses wherein the orientation determining section identifies a first direction to a given target point (source point or reflection point) from the sound receiving point at the position determined by the position determining section (user position), and determines the orientation of the sound receiving point in terms of a second direction (head direction) making a predetermined angle with respect to the identified first direction.

18. Regarding claim 12, Nagamitsu discloses wherein the orientation determining section sets the target point to the sound generating point (as above) in accordance with the instruction by the user.

19. Regarding claim 13, Nagamitsu discloses wherein the position determining section determines the position of the sound receiving point which moves in accordance with the instruction from the user (walks around room), and wherein the orientation determining section identifies based on the determined position of the sound receiving point a progressing direction along which the sound receiving point moves, and determines the orientation of the sound receiving point in terms of the identified progressing direction (head position).

20. Regarding claim 14, Nagamitsu discloses wherein the position determining section determines the position of the sound receiving point which moves in accordance with the instruction from the user (walks around room), and wherein the orientation determining section identifies based on the determined position of the sound receiving point a progressing direction along which the sound receiving point moves, and determines the orientation of the sound receiving point in terms of an angular direction making (head position) a predetermined angle with respect to the identified progressing direction.

21. Regarding claims 17 and 18, the method claims 17 and 18 are rejected in an analogous manner to the apparatus claims 1 and 8.

22. Regarding claims 15 and 16, the program claims 15 and 16 are rejected in an analogous manner to the apparatus claims 1 and 8.

Conclusion

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas Suthers whose telephone number is (571)272-0563. The examiner can normally be reached on 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571)272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

djs

VIVIAN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600